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Attachment to

25X1

Action Items

Para. 6

TSSG is to initiate clearance requests for two or three key ☐ people. *done*

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Para. 9

TSSG is to follow-up on questions posed to ☐ researchers on ways to manage and direct the PI effort without making it so automated and mechanical as to destroy individual initiative. TSSG to provide responses to IEG and solicit comments from them. *DED*

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Para. 12

TSSG to investigate need for maintenance facilities and people for ☐ High Precision Stereo Comparator (HPSC). *ESD*

25X1

IEG to prepare proposal on how to select and train operators of HPSC. *DED SSD*

IEG to comment on alternative proposal for location of HPSC (West Coast vs ☐). *DED MCT.*

25X1

→ TSSG and PSC to investigate problem of computer programming for HPSC.

Para. 15

TSSG to coordinate comments and actions to follow-on work in cloud-screening, including determining best method for cloud-screening, determining which method has greatest gain, arranging for inter-face between target indexing device and data base information, and further study of style and appearance of output of the target indexer. *DED, W/PSG*

Declass Review by
NIMA/DOD

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[REDACTED] 25X1
21 May 1969

Copy No. 5

MEMORANDUM FOR THE RECORD

SUBJECT: Visits to Various Organizations Engaged in R&D for NPIC

25X1 1. Accompanied by several NPIC officers including [REDACTED] Chief, Technical Services & Support Group, and [REDACTED] Chief, Planning, Programming & Budgeting Staff, I visited a number of organizations between 12 and 16 May to check on the status of R&D work being done for us. We spent a day at the [REDACTED] looking into the status of a dry silver film process which we hope to use in order to reduce our dependence upon expensive, noxious, and time-consuming chemical procedures for photo print-making. We spent the second day at the [REDACTED] in [REDACTED] to discuss current research work and special studies underway in the fields related to imagery interpretation. We spent a half-day at [REDACTED] where work is underway on the development of the multi-million dollar stereo comparator. We also visited the [REDACTED] in Los Angeles where we took a look at the work being done in automatic target indexing and recognition.

25X1 2. We were heartened by good progress being made at each of these organizations.

25X1 3. At [REDACTED] we were impressed by the progress being made in the development of films and materials for a dry silver process. They continue to confront a number of extremely difficult technical problems, however. It is one thing to be able to produce these materials in small quantities under laboratory conditions and quite another to scale up and produce them in quantity. The [REDACTED] people believe that they will surmount these problems in time. I, myself, do not believe they will be surmounted before 1972 and beyond. I therefore no longer count on having an entirely new dry process on hand in the Center by the time of the advent [REDACTED]

25X1 4. At the moment, [REDACTED] is producing its materials at a pilot plant. They have never been "manufactured" before and large-scale manufacturing requires its own R&D before it can be tackled. In keeping with the [REDACTED] tradition in investing sizeable sums of its own money (as well as ours) in this effort, the top-most company management will be asked in late June or early July to provide funds for the construction of a full-fledged manufacturing plant. By June 1970, [REDACTED] expects to be able to provide reasonable amounts of materials to meet our needs for certain processes.

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25X1

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25X1

5. [] officials were frank to confess that they were having trouble with film coatings, with quality controls, and with the development of acceptable chemical solutions. I gathered the impression they did not feel they could be expected to compete with high quality film makers such as [] In the final analysis, we are likely to have to consider making do with something less.

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6. They were very strong in their view that proper mix of dry silver materials with [] hardware (aperture card makers, visual display devices, and print makers) could have very high pay-off in the Center and we agreed that this is worth examination. In this connection, none of the [] people has T-10 clearance and we are taking immediate steps to provide such clearances for two or three of the key [] people so that they, working with Center officers and [] personnel, can make recommendations for the proper mix of this equipment and its application in the Center.

25X1

7. For our part, we impressed upon [] management our own high hopes for dry processing as a replacement for wet processing so that we can lessen silver consumption, gain additional floor space in the building, and dispense with the disadvantages of a wet process. We would like to have the dry process as a means to make quick prints for PI purposes and for publications as well. We mentioned the growing amount of imagery being received by the Center. We noted that we are just one of many PI units and the wide application of such a system could have major business implications for [] We repeated once again that our main objective is to have this dry system at high resolutions and reasonable speed by the end of 1970 or early 1971. We said we could not buy a pig in the poke, that we would have to be assured that our quality requirements were met. The precision and quality of the imagery is growing and reproduction facilities must be of similar quality. We can't allow degradation. We also made the point that a dry process is so important to us that we are watching with interest not only [] work but the work being done elsewhere in American industry. We hope to have pay-off from at least one of the several horses in this race.

25X1

8. We next visited [] and had a full exchange for the better part of a morning on the status of 1968 and 1969 imagery interpretation research programs. Much of this had to do with the interesting studies which had been carried out in an effort to learn more about what causes errors in our precise measurement work. We know a good deal about the technical errors caused by the attitude of the collecting vehicle and the measurement machinery we use, but we have been attempting to learn more about the human factors involved in measurement errors. Studies to date have permitted us to conclude

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25X1

[REDACTED] 25X1
SUBJECT: Visits to Various Organizations Engaged in R&D for NPIC

as a general rule that we can rely to an increasing degree on the PI's to perform measurements rather than photogrammetrists, and we have been able to determine that of two comparators we use one is far preferable and the preferred model is cheaper. Thus, we have put a stop to purchases of the more expensive version.

9. We had brief but intensive discussions on effective ways to manage and direct the PI effort without making it so automated and mechanical as to destroy individual initiative. We posed several questions to the [REDACTED] researchers and expect to have their advice and counsel on these matters in the near future. 25X1

25X1 10. [REDACTED] is anxious to be able to compete with other industries for real-time reconnaissance tasks and to this end has spent about [REDACTED] in Company funds to do research on the likely needs of a real-time exploitation system. [REDACTED] is already engaged in some phase of the collection cycle and is performing some work for [REDACTED]. They showed us their exploitation-related work to date. It is just beginning and we will be kept informed of their findings. The [REDACTED] effort could be of eventual use to the Center in the course of Center-sponsored real-time R&D scheduled for FY 71 and possibly FY 70. This is their own work and unrelated to [REDACTED] on-going research on our behalf. 25X1

25X1 11. We visited [REDACTED] and found everything proceeding nicely in the development of the stereo comparator. The critical item in this development is the optical system being done at [REDACTED] under sub-contract. The [REDACTED] contract monitor visits [REDACTED] every 60 days. His next visit will be in late June. The comparator is currently programmed for delivery to the Center sometime in the late Spring of '70. It would seem prudent to count on some further slippage, but it does appear it will be available to us well in advance of the [REDACTED]. There are some problem areas which we need to give internal Center study to in the coming weeks. 25X1

25X1 12. First, there is the question of maintenance. [REDACTED] estimates that this machine will have to be down for 36 hours every few months for a rather considerable overhaul. With the complexity of the gear this is going to require maintenance facilities and people. We will no doubt have to contract out with someone, possibly [REDACTED] to accomplish this. There is the related problem of providing day-to-day maintenance. Stockpiling spare parts could prove to be a fairly sizeable investment and this needs to be costed. Second, this is going to be a device of very high quality with extremely large capacity. It is doubtful that we will designate more than two or three NPIC officers to operate the device. They should be picked with some care, using whatever findings apply as a result of our [REDACTED] studies. Third, there remains the problem (which I think is a big one) of shipping the device to us. It will 25X1

SUBJECT: Visits to Various Organizations Engaged in R&D for NPIC

25X1 first be assembled at [REDACTED] and checked out. Then it will have to be shipped
25X1 cross-country to [REDACTED]. It will be large in structure and extremely
weighty (there are thousands of pounds of granite built into the device for
installation in a vibration-free environment). We will want to have the
proper assurances that this shipping can be done with low risks. We should
also consider the possibility of having the comparator remain in place at [REDACTED].
It could be maintained easily there. The operator could be posted PCS to the
area and do his work tied on-line to a computer in [REDACTED]. For a number
of reasons, this possibility may not be entirely feasible, but it should be
examined. Fourth, there is the problem of providing the computer programming
for the device. If in-house programming capability is insufficient, it will
have to be done by contract. The Center must make its decision on this soon.

25X1 13. We visited [REDACTED] to check the status of our top priority program.
This is the effort to find a way automatically to determine what targets have
been covered during the course of a given reconnaissance mission as compared
with those targets that are obscured by clouds or otherwise missed. There
are two methods under research. One is the use of optical devices to accomplish
spatial filtering. The other is through electronic procedures. At the moment
the optical system is outperforming the electronic approach. Over the next
three months the two efforts will be pursued and at the end of that time we
will decide which of the two will have our full backing. Though the optical
possibility looks best now, the electronic solution may prove in the long run
to be the best bet.

25X1 14. We had ample opportunity to emphasize to the [REDACTED] officers, including
25X1 the President of the [REDACTED] the importance of this work and how
highly dependent we are on the success of this development. It seemed clear
that the [REDACTED] brass is quite aware of the importance of this work and is
following it with some considerable interest.

25X1 15. In the meantime, we have some steps to be taken in the Center. First,
there are two ways to do cloud-screening. One is to screen target by target,
the other is to screen against widespread chunks of geographic areas. In the
event the process will accommodate only one of these processes rather than
both, we will want the one that has the greatest gain for us. Second, con-
siderably more work must be done at [REDACTED] and in the Center to arrange the
best inter-face between a target indexing device and data base information
such as the mission ephemeris. Thought must be given, too, to the style and
appearance of the output or reporting of the target indexer.

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